

Syllabus for SCS 306/EST 561: Outdoor / Environmental Education

Oakland University
School of Education and Human Services
Teacher Development and Educational Studies

Catalog Description

Methods, materials and sites for teaching science-related topics in an environmental/outdoor context. Topics may include terrestrial and aquatic ecology, water quality studies, bringing the outdoors indoors, and program planning. Field trips are included.

Class Details

Credits.....EST 506 1-4 credit hours, SCS 306 4 credits

SectionSCS 306 21445 (4 credit hours), EST 506 21691 (1-4 credit hours), Spring 2005

Day / TimeSaturdays, 8:30 a.m. – 3:30 p.m., May 7, 14, 21, 28 & June 4, 11, 18

Location.....**Birmingham Environmental Center (EC)**

23400 W. 13 Mile Road Bingham Farms, MI 48025 W: (248) 203-3403.

Instructor: Barbara J. Pepper, E-mail: bp03bps@birmingham.k12.mi.us

H: (248) 952-5520

Located on the north side of 13 Mile Road between Lahser & Telegraph, behind Bingham Farms Elementary School. There is limited parking in front of the environmental center. Plan on parking in the Bingham Farms Elementary School parking lot and walk back to the environmental center.

Moose Tree Nature Preserve (MT)

3191 W. Clarkston Rd. Lake Orion, MI 48362 W: (248) 391-3648

Instructor: Maura Jung E-mail: jung@oakland.edu

H: (248) 647-8334 (between 7:00 a.m. – 8:00 p.m.)

Located on the south side of Clarkston Road just east of Baldwin Road, next to Webber Elementary School. Park in lower lot (nearest to Clarkston Road).

Authorized Instructors

Barbara J. Pepper & Maura Lobos Jung

Office Hours: By appointment prior to or after class or by arrangement. Contact numbers listed above.

Required Materials

Sussman, Art. (2000) Dr. Art's Guide to Planet Earth, Chelsea Green Publishing, San Francisco, CA.

Methods of Instruction

This course requires the active participation of students. Methods of instruction include: lecture/demonstration; laboratory/field experiences; media presentations; review and analysis of teaching strategies materials; library research; collaborative/cooperative learning.

Course Content Outline

- I. Introduction to field-based student investigations
 - A. Field Ecology (terrestrial, school ground studies)
 - B. Aquatic studies -- water quality monitoring techniques
- II. Designing Environmental and Outdoor Education learning activities/programs
 - A. Instructional questions and considerations
 - B. Compatibility with educational research/trends/goals
 - C. Sample environmental/outdoor education programs
 1. Project WILD & Aquatic WILD

2. Project WET Water Education for Teachers
 3. Project Learning Tree
 4. GEMS, GeeWOW, Project WISE, Leopold Education Project, F.I.S.H.
 5. Local sites and other programs
- D. Bringing the Outdoors indoors
1. Field collecting techniques
 2. Maintaining living organisms in the classrooms
 3. Literature
- E. Support Organizations
- MAEOE, MUCC, DZS, NAAEE, NAI, DNR, DEQ, NWF, EPA, NWF, NWF, NOAA, CIS

III. Environmental Science

- A. The basics of the “ologies”. Ecology, Entomology, Ornithology, etc.
- B. Systems - ecosystem, hydrologic system, atmospheric system, etc.
- C. Cycles - life cycle, nitrogen cycle, recycle, CO₂, photosynthesis, etc.

Tentative Timeline

Week 1 May 7	<u>Meet at Birmingham Environmental Center</u> (Pepper & Jung) Overview of course, environmental agencies, interpreting the landscape, leading nature walks, make and take activities, taxonomy
Week 2 May 14	<u>Meet at Moose Tree Nature Preserve</u> (Jung & Pepper) Leading nature walks, ecosystems, “real research” using insects, scientific method, aquatic ecology <i>Chapter 1 & 2 questions, Dichotomous Key</i>
Week 3 May 21	<u>Meet at Moose Tree Nature Preserve</u> (Jung) Forestry, identification of trees, conducting a forest survey, soils, forest research, wood products <i>Nature Walks, Chapter 3 & 4 questions</i>
Week 4 May 28	<u>Meet at Birmingham Environmental Center</u> (Pepper) Invader Species, environmental literature, planning outdoor education activities, orienteering <i>Outdoor Activity, Brochures, Chapter 5 & 6 questions</i>
Week 5 June 4	<u>Meet at Moose Tree Nature Preserve</u> (Jung) Environmental concerns, games & simulations, interdisciplinary teaching <i>Outdoor Activity, Agency Presentations, Book Quiz</i>
Week 6 June 11	<u>Meet at Moose Tree Nature Preserve</u> (Jung & Pepper) Bringing the outdoors in, other resources <i>Agency Presentations</i>
Week 7 June 18	<u>Meet at Birmingham Environmental Center</u> (Pepper) Resources for teaching environmental education, wolves in sheep clothing

EST 561 & SCS 306: Evaluation Categories (240 points total)**Attendance, Participation, In-class Assignments (70 points)**

Participation and attendance is expected for each session for students to achieve maximum benefit. Regular attendance and participation in class activities and experiments are an integral component to success in this class. Each student is expected to prepare for and take an active part in class discussion, activities, and collaborative group work. This work also involves completing assigned reading and homework. Credit of 10 points given for full participation during each class. Arriving late, leaving early and level of participation will influence the number of points given per class session.

Outdoor Activity (50 points)

Students will develop a lesson which incorporates the outdoors and/or bringing the outdoors in. The lesson will be presented to peers. Participants may elect to work individually or in small collaborative groups. The activity may be original or adopted from other resources. The activity must demonstrate an understanding environmental and outdoor education. EST students will be expected to add interdisciplinary aspects to this assignment.

Readings: Dr. Art's Guide to Planet Earth (40 points)

Students will read and answer questions for each chapter of the required text. There will also be a chapter quiz.

Agency Research & Presentation (20 points)

Students will develop a time-line of various national, federal, state, county and local environmental agencies (including educational organizations) highlighting when and why (mission statement and purpose) they were created. Agencies should include, but not limited to: Bureau of Land Management (BLM), Fish & Wildlife Service, National Park Service, Temperate Forest Association, National Association for Interpretation, Department of Environmental Quality (DEQ), Department of Natural Resources (DNR), Michigan Alliance for Environmental and Outdoor Education, Nature Conservancy, Friends of the Rouge, Sierra Club, Ann Arbor Ecology Center, PIRGIM, Huron-Clinton Metropolitan Authority, etc. Students will compare and contrast outdoor education and environmental education agencies and by whom they are operated. SCS 306 students will focus upon the agency aspect of this assignment. EST 561 students will incorporate a time-line portion within assignment

Plant/Critter Brochure (20 points each)

Students will create two tri-fold brochures one highlighting a native Michigan plant and another a native "critter".

Conducting a Nature Walk (10 points)

Students will work alone or in small groups using techniques learned in class to conduct an interpretive nature walk highlighting a selected topic or theme. EST 561 students will work independently on this assignment.

Dichotomous Key (10 points)

Students will learn how to use a dichotomous key and create one using everyday items.

Variable Credit Assignment Options	Assignments (described above)
1 Credit	Attend all classes, readings and chapter questions, nature walk
2 Credits	Attend all classes, readings and chapter questions, nature walk, animal or plant brochure (1 brochure only), agency presentation
3 Credits	Attend all classes, readings and chapter questions, dichotomous key, nature walk, animal and plant brochure (both brochures), agency presentation
4 Credits	Attend all classes, readings and chapter questions, dichotomous key, nature walk, animal and plant brochure (both brochures), agency presentation, outdoor activity

Academic Honesty

Cheating and plagiarism are considered serious at Oakland University. All allegations of academic misconduct will be reported to the Dean of Students and, thereafter, to the Academic Conduct Committee for adjudication. Anyone found guilty of cheating in this course may receive a course grade of 0.0, in addition to any penalty assigned by the Academic Conduct Committee.

Grading Scale

Considered A's	Considered B's	Considered C's	Considered D's
<i>Grade %</i>	<i>Grade %</i>	<i>Grade %</i>	<i>Grade %</i>
4.0 100.0 - 98.60	3.5 90.59 - 88.60	2.9 79.59 - 78.60	1.9 69.59 - 68.60
3.9 98.59 - 96.60	3.4 88.59 - 86.60	2.8 78.59 - 77.60	1.8 68.59 - 67.60
3.8 96.59 - 94.60	3.3 86.59 - 84.60	2.7 77.59 - 76.60	1.7 67.59 - 66.60
3.7 94.59 - 92.60	3.2 84.59 - 82.60	2.6 76.59 - 75.60	1.6 66.59 - 65.60
3.6 92.59 - 90.60	3.1 82.59 - 80.60	2.5 75.59 - 74.60	1.5 65.59 - 64.60
	3.0 80.59 - 79.60	2.4 74.59 - 73.60	1.4 64.59 - 63.60
		2.3 73.59 - 72.60	1.3 63.59 - 62.60
		2.2 72.59 - 71.60	1.2 62.59 - 61.60
		2.1 71.59 - 70.60	1.1 61.59 - 60.60
		2.0 70.59 - 69.60	1.0 60.59 - 59.60

Resources and References

Brown, Vinson. (1983). *Investigating Nature through Outdoor Projects*. Stackpole Books, Harrisburg, PA.
Describes outdoor activities that utilize the scientific method.

Cornell, Joseph. (1979) *Sharing Nature with Children*. Ananda Publications, Nevada City, CA.
A Time-less book that describes techniques for educators to use when helping children explore nature.

Mitchell, Mark & Stapp, William. (1991). *Field Manual for Water Quality Monitoring*. Thomas-Shore Printer, Dexter, MI.
Excellent how-to guide to conduct water monitoring activities with students.

Ripple, Karen & Farbisch, Edgar. *POW! The Planning of Wetlands, An Educator's Guide*. Environmental Concern, Inc.
Provides educators with ideas for creating and restoring schoolyard wetlands.

Sussman, Art. (2000) *Dr. Art's Guide to Planet Earth*, Chelsea Green Publishing, San Francisco, CA.
Well written and very readable information on ecology and ecological cycles.